REMARKS/ARGUMENTS

Applicants request that claims 4 and 24 be amended and that new claims 28-40 be added. New claims 28-40 are the claims from parent application serial number 09/539,964 as they were when finally rejected by the Final Rejection mailed October 9, 2003. The claims of the '964 patent have been incorporated into this application to simplify prosecution and to present this application in better form for appeal, should such appeal be necessary. Subject to the entry of these amendments in the instant case, the Applicants intend to abandon parent application serial number 09/539,964.

When the Examiner takes this application up for action, she is requested to take the foregoing into account.

I. ARGUMENTS

A. Independent Claims 1, 15, 18, 23, 28, 35, 37, and 39 Are Patentable Over The Prior Art

Claims 1-9, 14-16, 18-21, and 23-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Martin et al. (US 6,061,562).

Claim 1 recites:

1. A communications system, comprising:
a gateway, communicatively coupleable to a terrestrially-based network;
a communications platform disposed in a stratospheric location, for transponding information between at least one of a plurality of user terminals and the gateway.

In previous communications, the Applicants have pointed out that the Martin reference does not teach a platform having a transponder. In the Final Office Action, the Examiner disagreed, stating:

> "... by definition, a transponder is a radio relay equipment on-board the aircraft in a bent pipe or relay communication system. Therefore, it is inherent within an airplane that a transponder is used to relay signals via the airplane to another destination ground station using transmiter receiver pair 166 or gateway antenna 168 (col. 8, lines 1-23) as is disclosed by Martin et al in which the aircraft acts as a relay station between gateway devices 22 (see col. 5, lines 30-42 and col. 5, lines 50-55)
>
> the aircraft recieves data from gateway device 22 and retransmits the data to another gateway 22 or CPE 18 in which the aircraft 12 acts like a repeater station to route and/or relay data from an originating device to a destination device; retransmit/relay the received data from the originating device to the destination device in the cited Martin reference acting

'as a radio relay equipment on board the aircraft in a bent pipe or relay communication system'."

The portions of the Martin et al. reference relied upon by the Examiner are reproduced below:

> In a particular embodiment, transmit/receive pairs 166 mounted on horizontal section 162 service cells 42 in center sector 44 of service area 16, whereas transmit/receive pairs 166 mounted on angled rim 164 service cells 42 in surrounding sectors 46 of service region 16. The particular arrangement of transmit/receive pairs 166 on antenna 160 shown in FIG. 4 service one central sector 44 and eight surrounding sectors 46. Each transmit/receive pair may comprise two 16.times.16, thirty inch square phased array elements. Transmit/receive pairs 166 may be added, removed, or arranged on antenna 160 in a modular fashion to provide a variety of communication capabilities. (col. 8, lines 1-22)

and

> In operation, aircraft 12 flies in an orbit 30 to maintain ASN 14 at an altitude above service center 16. The phased array antenna in ASN 14 electronically directs beams 40 to cells 42 in sectors 44 and 46 of service region 16. An originating device (e.g., CPE 18, BPE 20, gateway 22) located in a first cell 42 transmits data to ASN 14 using a first beam 40 servicing the first cell 42. A switch in ASN 14 couples the data received from the originating device to the phased array antenna for transmission to a destination device (e.g., CPE 18, BPE 20, gateway 22) located in a second cell 42 serviced by a second beam 40. In this manner, ASN 14 implements a star topology to interconnect any two devices within service region 16. (col. 5, lines 30-42)

> In a particular embodiment, the destination device could also be located in the same cell as the originating device. ASN 14 supports multiple subscriber channels within a given beam 40, with each channel separated by time division multiple access (TDMA), code division multiple access (CDMA), frequency division multiple access (FDMA), or other appropriate channel separation technique. For communication between subscribers in the same beam 40, ASN 14 receives packet data from the originating device in the first cell 42 and directs the packet data to the antenna for transmission to a second subscriber in the first cell 42 to allow for channel-to-channel communication within the same beam 40. (col. 5, lines 44-55).

The Applicants respectfully suggest that this argument relies on both hindsight reconstruction and a misapplication of the inherency doctrine. Nothing in the foregoing discloses a "bent-pipe" or "relay" communication system. The terms "bent pipe" and "repeat" do not appear to be used in the specification, and the word "relay" is used in the Martin reference in an entirely different context:

> Multiplexer 102 directly couples to local area network (LAN) 104 to support video conferencing services 106. Multiplexer 102 also couples to LAN 108 using a fractional T1 connection supporting V.35 protocol and a frame ***relay*** adapter 110. (col. 7, lines 8-9, emphasis added)

> In operation, ASN 14 interconnects devices 100 to provide telephony and data communication, local wireless service, LAN/WAN interconnection (bridging/routing), graphical data transmission, video transmission, and connectivity with other systems, such as long-haul data networks using D4 channel bank 116 or data interface 126. ASN 14 transports frame ***relay***, LAN/WAN, T1, V.35, and other traffic using packet switching, such as ATM switching. (col. 7, lines 39-46, emphasis added)

Based upon the foregoing, there is no basis whatever for the Office Action's claim that the Martin discloses a "relay", "bent pipe", or "repeater" system or anything like it.

The law regarding application of the inherency doctrine is clear. It may not be applied unless extrinsic evidence makes it clear that "the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill."*Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991). Nothing in the sections of the Martin reference quoted above even remotely support an argument that a transponder is *necessarily present* in the Martin system.

If, perhaps the Office Action's argument is that the system transmitting a signal from the ground to an airborne/spaceborne asset, and back to the ground inherently *transponds* the signal or includes a *transponder*, the Applicants point out that that definition was and is inconsistent with that which was understood by those of ordinary skill in the art. As described in "Telecommunications: Glossary of Telecommunications Terms," Federal Standard 1037C, dated August 7, 1996 (a copy of which is attached), a "transponder" is defined as follows:

> **transponder: 1** . An automatic device that receives, amplifies, and retransmits a signal on a different frequency. **2.** An automatic device that transmits a predetermined message in response to a predefined received signal. *Note:* An example of transponders is in identification-friend-or-foe systems and air-traffic-control secondary radar (beacon radar) systems. **3.** A receiver-transmitter that will generate a reply signal upon proper interrogation.

The Martin system does not conform to any of these definitions.

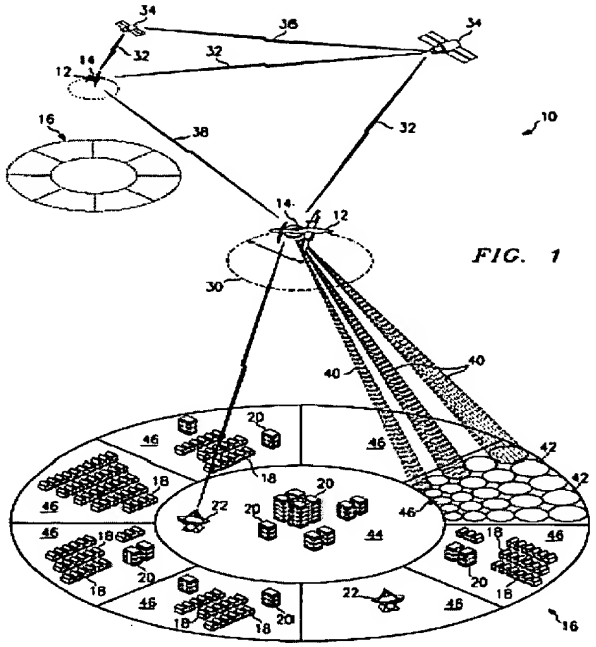


FIG. 1

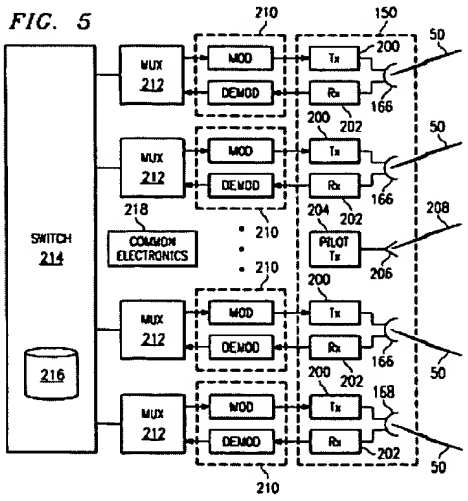
The ASN (14) of the Martin reference includes a switching network 214 and a database 216 that are used to route messages from to the proper destination. This is described as follows:

> ASN 14 also includes a modem 210 and a multiplexer 212 for each transmit/receive pair 166 and gateway antenna 168. A switch 214 coupled to each multiplexer 212 provides interconnection of data in communication system 10. Switch 214 includes database 216 that stores information on each cell 42 in service region 16 and associated beams 40 formed by transmit/receive pairs 166 to service cells 42. Database 216 also maintains suitable customer, addressing, routing, and mapping information to perform asynchronous transfer mode (ATM) or other suitable packet switching technique. Database 216 may comprise random access memory (RAM), read only memory (ROM), magnetic or optical devices, or any other suitable memory. Common electronics 218 include power supplies, processors, and other hardware and software to support the operation of ASN 14.
>
> In operation, an originating device in an originating cell 42 transmits packet data over link 50 to ASN 14. Transmit/receive pair 166 forming an originating beam 40 servicing originating cell 42 passes the packet data to receive module 202 for down converting and suitable RF processing. Demodulator in modem 210 then extracts the digital packet data and passes this information to multiplexer 212. Using SONET or other suitable protocol, multiplexer 212 passes the packet data to switch 214 for routing.
>
> Switch 214 retrieves addressing or routing information from the packet data, associates this information with a particular subscriber or destination device, determines an associated destination cell 42, and determines a destination beam 40 servicing the destination cell 42. Upon determining destination beam 40, switch 214 routes the packet data to the appropriate multiplexer 212 servicing transmit/receive pair 166 that forms destination beam 40. Multiplexer 212 combines the packet data with other packet data to the same transmit/receive pair 166 and passes this information to the modulator in modem 210 for delivery to transmit module 200. Transmit/receive pair 166 communicates the modulated RF signal containing the packet data to destination cell

> 42 using destination beam 40. The destination device receives the packet data and translates the packet data into digital information for further processing. ASN 14 performs a similar operation for communication that involves gateway 22 and gateway antenna 168. (col. 9, lines 17-59)

and is illustrated in FIG. 5 below.

FIG. 5



The Martin reference teaches a system wherein the decision as to where the information is to be transmitted is made by the platform itself. This necessitates a rather large and complex communication platform, and is not a characteristic of a bent pipe communication system using a *transponder.*

Claims 15, 18, 23, 28, 35, 37, and 39 each recite a transponder or a *transponding* operation, and are patentable for the same reasons.

Claims 28, 35, 37, and 39 also recite further limitations rendering them even more remote from the Martin reference. Specifically, claims 28 and 39, recite that the communications platform is located *"in a substantially geostationary stratospheric location"*, while claims 35 and 37 recite *"a stratosphere-based substantially geostationary communications platform"*.

With regard to the "substantially geostationary" feature, the Office Action argues:

> "... according to the applicants specification, page 7, lines 19-23, 'the platform flies in a small radius flight path 118 typically a circle, ellipsoid, or other shaped path over a given spot over the earth" which corresponds to the cited reference to 'predefined orbit 30 which can be

circular, elliptical, or any other suitable orbit to maintain the ASN 14 positioned over above service region 16'."

However, this ignores the following portion of the Applicants' specification, which more clearly defines the scope of "substantially stationary":

> "To account for the fact that the apparent position of the aeronautical platforms are not entirely stationary over time, the user receiving antennae have sufficient beamwidth to circumscribe the apparent position of the aeronautical platforms transceiving information with the user terminals. This permits the use of low cost antennae systems that do not track the aeronautical platforms as they move about. The gateway antennas and the platform antennas on the other hand track each other to maximize the link availability." (page 4, lines 3-8)

As the Applicants have already pointed out, the Martin reference teaches that the apparent motion of the platform will be in a circle of about 28 degrees. This teaches a platform which cannot be referred to as "substantially geostationary", and one in which active control of the antenna at the user's station is required to point it at the platform:

> CPE 18, BPE 20, and gateway 22 (referred to generally as devices) all perform similar functions. These devices include a high-gain antenna that automatically tracks ASN 14 to extract modulated signals conveyed over link 50 using MMW frequencies. (col. 6, lines 31-35)

In contrast, the Applicants' invention uses a platform located in a substantially *geostationary* stratospheric location, allowing the use of fixed user terminal antennas with a beamwidth that is narrow, but wide enough to circumscribe the path of the platform.

Referring to the Martin reference, the Office Action also argues that

> "the gateway device 22's antenna beamwidth is narrow and capable of receiving millimeter wave frequency signals from the aircraft 12 flying in a circle of a predefined diameter providing continuous communication capabilities to service region 16."

But, because Martin's platforms are not "substantially geostationary", the gateway antenna is only capable of receiving the signals because it is *actively controlled* to point at the platforms as described (see col. 6, lines 31-35 above).

B. Dependent Claims 4, 24, 34, 36, 38, and 40 are Patentable Over the Martin Reference

Claim 4 recites:

> *the user terminal includes an unsteered user terminal antenna characterizable by a beamwidth; and*
> *the communications platform maintains an apparent position relative to the user terminal within the beamwidth of the user terminal antenna.*

The Final Office Action argues:

> "Regarding claim 4, the argument also alleges that the reference doesn't disclose the platform maintains an apparent position within user terminal's antenna beamwith. However, according to applicant's specification, page 7, lines 19-23, "the platform flies in a small radius flight path 118 typically a circle, ellipsoid, or other shaped path over a orbit 30 which can be circular, elliptical, or any other suitable orbit to maintain the ASN 14 positioned over above service region 16.
> Also, according to col 3, line 63 - col 4, line 11 of Martin et al, the gateway device 22's antenna beamwidth is narrow and capable of receiving millimeter wave frequency signals from the aircraft 12 flying in a circle of a predefined diameter providing continuous communication capabilities to service region 16 which in otherwords, even within the predefined circle discussed in the above paragraph, the gateway's antenna is still able to receive signals from the aircraft within its narrow beamwith which reads on the claim's broad limitation "the platform maintains an apparaent position relative to the user terminal within the beamwidth of the user terminal antenna."

Claim 4 has been now amended to more clearly recite that the user terminal antenna is unsteered. As pointed out in the Applicants Amendment under 37 C.F.R. § 1.111, the Martin reference teaches that the apparent motion of the platform will be in a circle of about 28 degrees. This teaches a platform in which active control of the antenna at the user's station is required:

> CPE 18, BPE 20, and gateway 22 (referred to generally as devices) all perform similar functions. These devices include a high-gain antenna that automatically tracks ASN 14 to extract modulated signals conveyed over link 50 using MMW frequencies. (col. 6, lines 31-35)

In contrast, the Applicants' invention uses an unsteered user terminal antenna.

Claim 24, 34, 36, 38, and 40 recite features analogous to those of claim 4 and are patentable for the same reasons.

C. Dependent Claims 2, 3, 5-14, 16, 17, 19-22, 25-27, 29-33 are Patentable

Claim 12 is being rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al (US 6,061,562). Claim 13 is being rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al in view of McKenna et al (US 6,377,802) and further in view of Emmons Jr. et al (US 6,570,858). Claims 10, 17, 22 and 26-27 are being rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al (US 6,061,562) in view of Brown (US 6,157,621). Claim 11 is being rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al (US 6,061,562) in view of Brown (US 6,157,621) and further in view of Antonio et al (US 6,339,611).

Claims 2, 3, 5-14, 16, 17, 19-22, 25-27, and 29-33 each recite additional features as well as the features of the claims they depend therefrom. Accordingly, claims 2, 3, 5-14, 16, 17, 19-22, 25-27, and 29-33 are also patentable over the references of record.

II. CONCLUSION

In view of the above, it is submitted that this application is now in good order for allowance and such allowance is respectfully solicited. Should the Examiner believe minor matters still remain that can be resolved in a telephone interview, the Examiner is urged to call Applicants' undersigned attorney.

III. NOTE CONCERNING PREVIOUSLY SUBMITTED PTO FORM 1449

An Information Disclosure Statement, PTO Form 1449 listing certain references and copies of those references were mailed to the Office on February 21, 2002 and the return post card receipt received from the Office for this correspondence is date stamped March 26, 2002. However, the PTO Form was not returned (initialed and signed by the Office) with the Office Action. This oversight was brought to the attention of the Office in the response filed on September 16, 2003 and a copy of the PTO Form 1449 was resubmitted for the convenience of the Office. However, the signed form has still not been received from the Office. Therefore, these references are again being listed on the Supplemental IDS form being submitted herewith and copies are being resubmitted for consideration by the Office.

Respectfully submitted,

By their attorneys,

Date: January 29, 2004

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